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**Virtual customer service agents: Using social presence and personalization to shape online service encounters**

**Research Memorandum 2011-10**

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Virtual Customer Service Agents:  
Using Social Presence and Personalization to Shape Online Service  
Encounters

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# Virtual Customer Service Agents: Using Social Presence and Personalization to Shape Online Service Encounters

## ABSTRACT

By performing tasks traditionally fulfilled by service personnel in physical settings and having a humanlike appearance, virtual customer service agents seem to bring classical service personnel characteristics to the online service encounter, which in turn may elicit social responses and feelings of personalization. This paper sheds light on these dynamics by proposing and testing a nomological structure drawing upon the theories of implicit personality, social response, primitive emotional contagion, and social interaction. The focus of the proposed model is on the role of three classical service personnel characteristics – specifically friendliness, expertise, and smile- as determinants of perceptions of social presence, personalization, and online service encounter satisfaction. An experimental design (n= 296) was applied to test the model. The key finding of the study is that friendliness and expertise strongly influence social presence and personalization, which in their turn lead to online service encounter satisfaction. Overall, the study highlights the value of transposing traditional service personnel characteristics via virtual customer service agents to the web, and underlines that integration between technology and personal aspects may lead to more social online service encounters.

## KEYWORDS

Online service encounter, virtual customer service agent, social presence, personalization, friendliness, expertise, smile, experimental study.

# Virtual Customer Service Agents: Using Social Presence and Personalization to Shape Online Service Encounters

## 1. INTRODUCTION

In the digital age, online service encounters are critical to a customer's image of service providers and therefore central to determining the success of the firm (Grönroos 2000). Service providers gradually have shaped these moments of dyadic online interaction to the advantages of the Internet by providing permanent availability of information and allowing for real-time interaction between customer and company. Through tools like frequently asked questions (Meuter et al. 2000), live chats (Andrews et al. 2002), and customer communities (Armstrong et al. 1996) service providers effectively and efficiently supply customers with sought-for information or solutions to problems. Most of these tools, however, only marginally incorporate two characteristics that traditionally have labeled key in delivering successful service encounters: feelings of social presence and a sense of personalization (Bitner et al. 1990; Suprenant et al. 1987). *Social presence* compasses the feeling of personal, sociable, and sensitive human contact conveyed through and within a medium (Short et al. 1976; Yoo et al. 2001), while sense of *personalization* refers to the extent to which a customer feels the content offered is appropriate, based on personal information and tailor-made to their needs (Bonett 2001; Lee et al. 2009). Both elements are strongly associated with a customer's feeling of social and personal support (Bearden et al. 1998) and represent two fundamental building blocks of service encounters as service encounters rely heavily on interpersonal contact (Shostack 1985), are by and large of social nature (Bitner 1990), and have been theorized as low tech, high touch moments of truth (Bitner et al. 2000; Drennan et al. 2003).

Due to the distant and computer-mediated nature of the Internet, feelings of social presence and a sense of personalized approach have been quite hard to convey in online service settings (Hassanein et al. 2007). Empowered by developments in self-service technology, *virtual customer service agents* (VCSAs) seem to provide new perspective on this issue. VCSAs are computer-generated characters that are able to interact with customers and simulate behavior of human company representatives through artificial intelligence (Cassel et al. 2000). Building on social response theory (Nass et al. 2000), scholars have put forward that VCSAs can fulfill the role of service representatives and substitute tasks historically performed by human service personnel (Meuter et al. 2000). Therefore, VCSAs seem an exemplary tool to address the lack of interpersonal interaction (Dabholkar 1996; Dabholkar et al. 2002) recognized in online settings and to elicit feelings of social presence and senses of personalization, thereby responding to the call for integration between technology and personal aspects of online service delivery (Berry 1999).

Despite the suggestion that VSCAs are able to represent elements previously unfeasible in online service encounters, research has not yet answered the question how and to what extent particular VCSA characteristics can be employed to shape and improve online service encounters. Moreover, research thus far disregarded the question whether elements historically shown to be at the heart of offline service conception, i.e. social and personalized contact between the customer and service provider (Bitner et al. 1990; Suprenant et al. 1987), are also central elements in online service encounters. In this study we aim to address these two intriguing questions. In an attempt to adapt elements from traditional customer service literature to shape online customer service encounters by virtue of a VSCA we focus our inquiry on three classical service agent characteristics: *friendliness*, *expertise*, and *smiling*, and the moderating roles of *communication style* and *anthropomorphism* on online perceptions of social presence, personalization, and service encounter satisfaction. The

impact of the three characteristics and the two moderators will be embedded into several streams of research, such as implicit personality theory (Anderson 1995), social response theory (Nass et al. 2000), the theory of primitive emotional contagion (Hatfield et al. 1992), and social interaction theory (Ben-Zira 1980).

Our decision to select *friendliness, expertise, smiling, communication style, and anthropomorphism* was backed up both theoretically and managerially. Being polite, responsive, helpful and understanding is claimed a paramount property of service delivery (Price et al. 1995), as is possessing the required skills and being knowledgeable about the service (Parasuraman et al. 1985). Yet, despite, or perhaps due to, their general and widely applicable nature friendliness and expertise are only occasionally employed as predictive variables and research on their role in online service encounters is limited (Witkowski et al. 1999). Moreover, literature on the importance of serving customers with ‘an American smile’ is redundant, (e.g. Hennig-Thurau et al. 2006; Pugh 2001), but little research is conducted on whether smiling service representatives elicit the same responses when the interaction is mediated by technology and with a computer-generated character. From a practical perspective the interaction between the three agent characteristics allows consumers to get a complete impression, both verbally and non-verbally, of the agent by appraising *what* (expertise), *how* (friendliness) and *with what emotion* the agent delivers the service. The two moderators, communication style and anthropomorphism, were added to test the role of the three traditional characteristics in relation to the existing body of research (cf. Baron et al. 1986; Dabholkar et al. 2002).

Integrating our line of reasoning thus far, this paper intends to make three contributions. First, we empirically investigate the role of VSCAs to shape more social and personalized online service encounters. VSCAs possess the ability to provide online service encounters with a human touch, an element deemed critical to service delivery (Bitner et al.

2000). Second, within this inquiry we address the direct influence of VCSA characteristics and the indirect influence of agent design on online customer service evaluations and extrapolate whether employing cues deemed important in traditional service encounter literature, i.e. being friendly, knowledgeable and provide service with a smile, are also vital to the success of online service encounters. This enables us to evaluate the applicability of traditional customer service thought in online settings and provide further directions to the academic field of online customer service. Third, from a managerial perspective, insight in how to best represent a VCSA is gained. Not only does this increase service company's conceptual knowledge of VCSAs, it also reduces their effort, time, and cost to design, implement, and maintain such an agent as well as to shape the service process.

The proceedings of this paper are organized as follows. In the second section we draw a conceptualization of online service encounters and discuss how VCSAs prove an exemplar IT artifact to structure more social online service encounters. In section three we present our research model and elaborate on the hypotheses. The fourth section explains our research design; the fifth section presents the results of our study. In the last section, we discuss our findings and contributions, and suggest avenues for further research.

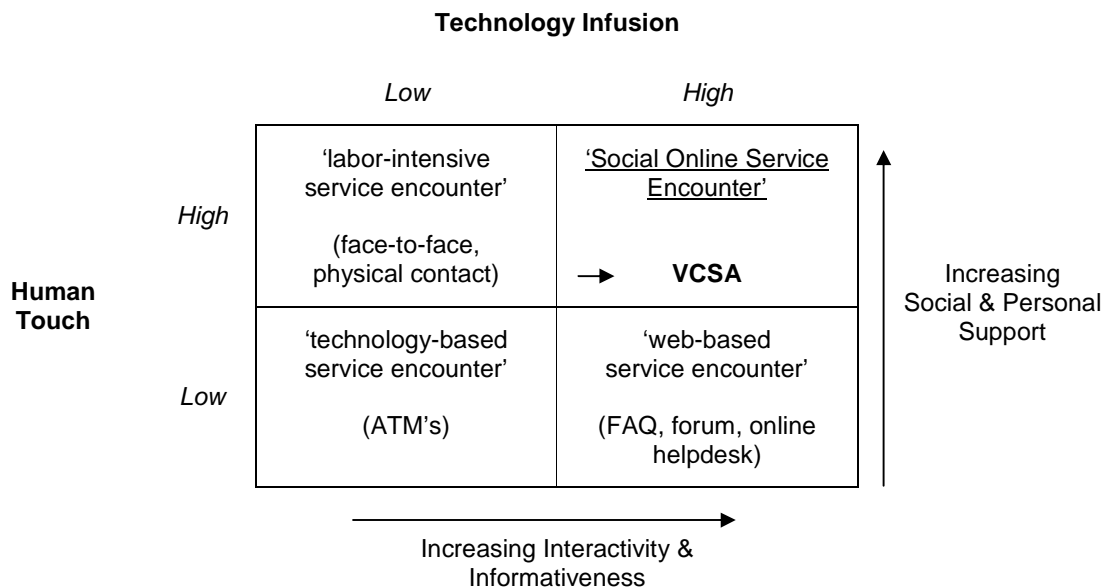


## 2. CONCEPTUAL BACKGROUND

### 2.1 The Online Service Encounter

The infusion of technology is dramatically changing the nature of service encounters (Bitner et al. 2000). The shift from physical, face-to-face contact towards online service encounters implies a substantial change of the nature of the service encounter. Visualized in Figure 1, current online service encounters relate little to the traditional typology of “high-touch, low-tech” (Bitner et al. 2000), but akin more to a “low-touch, high-tech” conceptualization. The transition from high to low touch and low to high technology works for service providers in two ways. On the one hand, service providers benefit from the greater interactivity (Hoffman et al. 1999) and informativeness (Negash et al. 2003) when servicing customers online. On the other hand, social and personal contact are hard to fill in online and seem to be key weaknesses when creating online service encounter experiences.

**Figure 1: Human Touch vs. Technology Infusion in Service Encounters**



Notwithstanding, the IS literature has theorized that technological artifacts can be employed in such a way that they do function as social actors (Al-Natour, S. et al. 2006). More specifically, researchers identified the design of IT artifacts to impact users' perceptions of socialness by conveying feelings of social presence and sense of personalization (Wang et al. 2007). Especially these two essential elements of the service encounter are most likely to be evoked by VCSAs as they possess the ability to interact socially and interpersonally, show personality and behave human-like (Qiu et al. 2009). Consequently, VCSAs are assumed to be an adequate vehicle to transpose online service encounters to a higher level, melting elements of both 'high tech' and 'high touch' to form a new type of service encounters: the 'social online service encounter' (see Figure 1). The next section elaborates on the role of social presence and personalization within this conceptualization.

## **2.2 Transposing Social Presence via IT artifacts**

Research has identified that the design of information systems influences the extent of sociable and sensitive human contact conveyed through the IT artifact. For example: adding human images (Cyr et al. 2009; Hassanein et al. 2007), human audio (Kumar et al. 2006; Lombard et al. 1997), and personalized greetings (Gefen et al. 2003) to an IT artifact have all been shown to positively influence perceptions of social presence. Common to all IT cues addressed in these studies is the fact that anthropomorphic characteristics can be assigned to the IT artifact. Given their humanlike appearance, VCSAs are likely to elicit high feelings of social presence as well. By simulating human behavior and having the ability to visually represent human representatives VCSAs cue human characteristics, which in turn may elicit social responses and can also convey feelings of warmth (Nass et al. 2000). We therefore contest that a VCSA can be deployed as IT artifact to address the lack of social presence currently recognized in online service encounters.

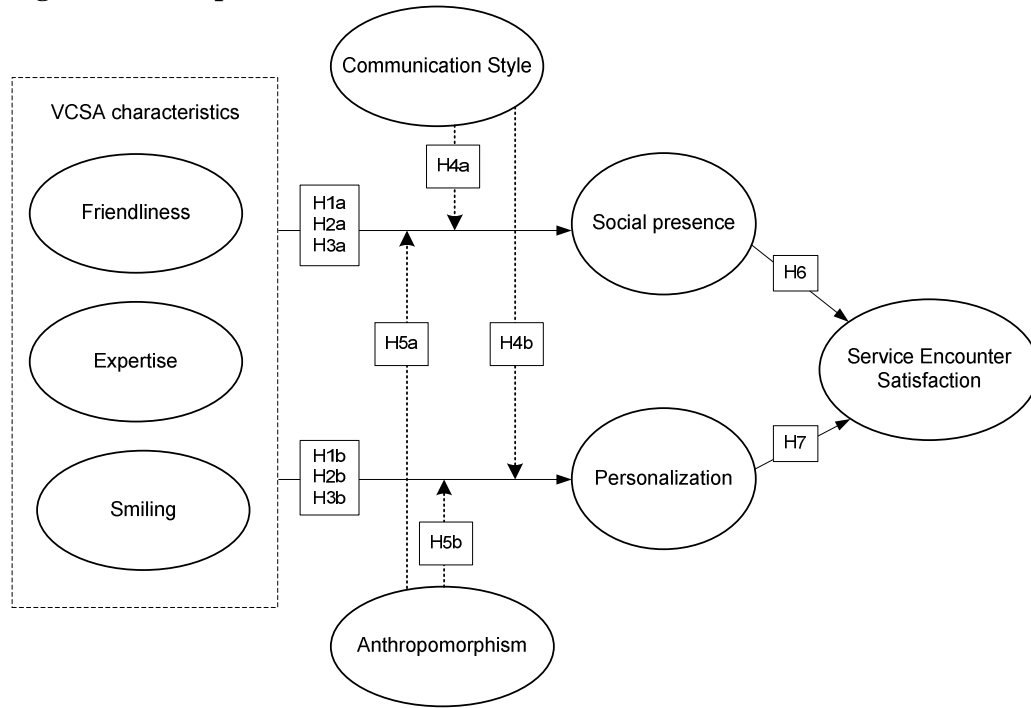
### **2.3 Creating Personalization via IT artifacts**

The IS literature has examined a wide range of personalization tools, ranging from fairly straight-forward methods, like addressing the customer by name (Reiter et al. 1999), to more technologically advanced usage, like offering products and services matched to customer preferences (Ho et al. 2008) or employing recommendation agents (Komiak et al. 2006). Firms apply these personalization tools to gather and harvest information about consumers to better identify, fit and satisfy their specific needs (Montgomery et al. 2009; Tam et al. 2005) in order to build personal customer relationships (Liang et al. 2009). Employing a humanlike representation induces the customer's feelings that one is interacting with an employee on a one-on-one base, for example through role-taking (Suprenant et al. 1987), and in turn magnifies *what* is communicated by the agent. Based on their humanlike experience VCSAs may signal they understand and represent the customer's personal needs (Bonett 2001; Komiak et al. 2006). In this light, VSCA combine the technological fundamentals of personalization with a human touch and therefore seem to be an applicable IT tool to elicit feelings of personalization in the online service encounter.

### **3. RESEARCH MODEL AND HYPOTHESES**

To study the influence of VCSA characteristics on consumer evaluations, the research model in Figure 2 is constructed.

**Figure 2: Conceptual Model**



A critical outcome measure of face-to-face, self-service and online service encounters (Bitner et al. 2000; Evans et al. 2000) is service encounter satisfaction and has been suggested as a proxy for customer's "emotive post-consumption evaluation of the service performance" (Caruana 2002, p. 816). From this perspective, it seems plausible to assume that a customer's evaluation of the VCSA (encounter) performance may influence his or her satisfaction.

The influence of customers' perceptions of service employee performance on customer satisfaction has received considerable attention in the marketing literature and practice in recent years. It has been reported consistently that the behavior of the service employee plays a critical role in shaping customers' perceptions of the interaction (Bitner et al. 1990; Spiro et al. 1990). Service employee performance can be grouped into two types, core tasks and socio-emotional aspects (Czepiel 1990; Price et al. 1995; Winsted 1997). Core tasks relate to the activities that must be performed to meet the goals of the task and include

product knowledge, fulfilling customer service needs and helping customers to achieve their goals, i.e., expertise. Socio-emotional aspects comprise those employee behaviors that foster interpersonal relationships and satisfy customers' emotional needs, i.e., friendliness and smiling. These facilitate interactions and create a positive evaluation by being friendly, enthusiastic, attentive, and showing empathy for the customer (Beatty et al. 1996; Rafaeli 1993). Customers' perceptions of both aspects of service employee performance have been found to be important drivers of customer satisfaction (Price et al. 1995; Winsted 1997). In our study we argue that this influence is mediated by social presence and personalization. Social presence and personalization represent the social and personal contact established in the service encounter, and are theorized to be two fundamental aspects of service delivery (Bitner et al. 1990; Suprenant et al. 1987).

### ***Friendliness***

Agents' perceived friendliness is defined as being polite, responsive, giving extra attention and creating mutual understanding (Price et al. 1995). It is likely that a friendly service agent evokes feelings of personal, sociable, and sensitive human contact, i.e., social presence, within the consumer. The logic for this elicitation comes from implicit personality theory (Anderson 1995), which assumes that perceptions of personality traits enacted by a person carry over in the expectations we have about other personality traits of that person. Adding to this reasoning researchers have identified that in order to be judged humanlike, and thus elicit social presence, building friendly and interpersonal relationships is vital (Keeling et al. 2010). Accumulating evidence is provided by Baylor & Kim (2005) who showed that friendliness is an important determinant of social presence.

Furthermore, and again supported by implicit personality theory, agents that are responsive to consumer needs and create a feeling of mutual understanding are likely to

increase the feeling that the content they offer is appropriate, based on personal information and tailor-made to their needs, i.e., personalization. Indeed, service providers being warm and friendly are found to build a closer relationship with the customer (Li 2009) and offer a more personally rewarding shopping experience (Mittal et al. 1996). In line with this we hypothesize:

*H1: VCSA's friendliness has a positive effect on customer's (a) feelings of social presence and (b) perceived personalization during the service encounter*

### ***Expertise***

Expertise has often been noted as an attribute of the service employee (Crosby et al. 1990). It goes to the core of what is expected of the service employee during the interaction, and defines the extent to which the individual provider can affect the outcome of the interaction through his or her skills. Customers seek to obtain advice and information of the employee that requires an expertise they lack (Johnson, E. et al. 1991). Baylor & Kim (2005) found that expert agents are able to elicit feelings of human warmth, and therefore feelings of social presence. Following social response theory, which states that people respond to computer systems treating them as social actors (Reeves et al. 1996), these findings can be explained by arguing that knowledgeable agents signal behavior normally associated with humans. This behavior provides consumers a basis for identification with the agent and induces social schema's within the consumer (Jiang et al. 2000).

Furthermore, it has been argued that service providers perceived as possessing the required skills and being competent to fulfill the service delivery are also identified as being more personalized as customers expect the agent to employ their personal information to the

best of their knowledge and serve them appropriately (Parasuraman et al. 1985). Therefore, we propose:

*H2: VCSA's expertise has a positive effect on customer's (a) feelings of social presence and (b) perceived personalization during the service encounter*

### ***Smiling***

Primitive emotional contagion theory provides an explanation of how behaviors like smiling are transformed from service employees to customers (Barger et al. 2006; Hennig-Thurau et al. 2006). The theory proposes that individuals have a tendency to unconsciously synchronize with another person's behavior and that within this process one's emotional state is converged (Hatfield et al. 1992). The relationship between primitive emotional contagion theory and social presence has indirectly been reported in previous research as it is suggested that factors such as smiling increase the level of intimacy in the interaction (Gunawardena et al. 1997). Also, customers reporting to have a better mood through mimicking the agent's positive emotional display, are likely to experience more personal, sociable, and sensitive human contact in the service encounter (Brave et al. 2002; Morkes et al. 1998). Moreover, besides having a more positive feeling about the encounter, the agent also visually expresses a desire to affiliate and to continue interacting in a current encounter (Manstead et al. 1999). Finally, showing positive appeal (e.g. smiling) induces a willingness to interact with customers, adjust their service and invest in the personal relationship (Rafaeli et al. 1990) resulting in a more personalized encounter. Therefore, the following hypotheses are proposed:

*H3: VCSA's smiling has a positive effect on customer's (a) feelings of social presence and (b) perceived personalization during the service encounter*

### ***Moderating Effect of Communication Style***

Research has proposed that communication style moderates the effect of online service agent perceptions on relationship outcomes (e.g. Dabholkar et al. 2009; Van Dolen et al. 2007). In terms of communication, two distinct styles have been found: social- and task-orientation. Aimed at establishing interpersonal relationships with customers, socially-oriented communication satisfies customer's emotional needs and personalizes the interaction (Crosby et al. 1990; Williams et al. 1985). On the other hand, a task-oriented communication style is aimed at task efficiency, goal-driven and minimizes cost, effort, and time allocated to the interaction (Bales 1958; Dion et al. 1992).

Drawing upon social interaction theory (Ben-Zira 1980), it can be argued that when consumers are involved in service encounters where they have less knowledge and solutions than the service provider, as is the case when requesting after-sales customer service, evaluation of the service is at least partly based on the affective component of the provider's communication (see also Webster et al. 2009). As socially-oriented agents foster a stronger psychological connection with the customer, are more "social-emotional in nature" (Froehle 2006, p11), and share a greater feeling of human contact with the customer (Yoo et al. 2001) their communication style is argued to generate a tendency of affective-based processing (Dabholkar et al. 2009). The effect of friendliness, expertise and smiling on social presence and personalization is proposed to be magnified by social communication as greater emphasis is put on the feeling of solving a problem together, being more responsiveness to personal needs and enhancing social contagion (Czepiel 1990). Therefore, the following moderating effects are hypothesized:



*H4: The effects of the VCSA's friendliness, expertise, and smiling on (a) feelings of social presence and (b) perceived personalization will be stronger when the VCSA is socially (vs. task) oriented.*

### ***Moderating Effect of Anthropomorphism***

Lee (2010) suggests that investigating the moderating role of anthropomorphism yields more understanding of people's tendency to apply social attributes to artificial agents. That is, in line with social response theory (Nass et al. 2000), the relative effect of the agent's characteristics on its ability to foster a personal relationship will be stronger when the agent is anthropomorphized. Indeed, a meta-analysis indicates that humanlike agents with 'higher realism' elicit more positive social interaction, especially when subjective evaluations are employed (Yee et al. 2007). Thus, by employing observable human characteristics the agent cues capabilities of humanlike interpersonal communication and this increases the feeling of social and personal interaction, magnifying the effects hypothesized earlier. Therefore, we propose:

*H5: The effects of the VCSA's friendliness, expertise, and smiling on (a) feelings of social presence and (b) perceived personalization will be stronger when the VCSA is humanlike (vs. cartoonlike).*

### ***Service Encounter Satisfaction***

Researchers have repeatedly emphasized the critical role of social and personal contact in service encounters (e.g. Czepiel 1990; Suprenant et al. 1987) and examined its effect on outcome measures like satisfaction (e.g. Bitner et al. 1990; Crosby et al. 1990). Social presence has not been related to customer satisfaction yet. However, social presence is

positively related to customer outcomes such as trust (Cyr et al. 2009; Gefen et al. 2003) and technology acceptance related constructs like enjoyment (Qiu et al. 2009) and usefulness (Hassanein et al. 2007; Hassanein et al. 2009), and e-loyalty (Cyr et al. 2007). Therefore, it seems plausible that social presence is positively related to service encounter satisfaction. Thus, we argue:

*H6: The feelings of social presence elicited by the VCSA has a positive effect on service encounter satisfaction.*

It is well known that personalization affects customers' service encounter satisfaction (e.g. Ho et al. 2008; Suprenant et al. 1987). In fact, Zeithaml et al. (2002) argue that seeking "understanding, courtesy, and other aspects of personal attention" (p. 367) are especially important determinants of service evaluation when customer service is requested. Therefore, we hypothesize:

*H7: The sense of personalization elicited by the VCSA has a positive effect on service encounter satisfaction.*

#### **4. METHOD**

To test our hypotheses, a laboratory experiment was conducted representing a setting in which participants interacted with a VCSA. The research design included manipulations for *smiling* (smiling vs. neutral), *communication style* (socially- vs. task-oriented), and *anthropomorphism* (human vs. cartoon) (see Table 1).

**Table 1: Experimental Design**

| <b>Communication<br/>Style</b> |               | <b>Anthropomorphism</b> |                    |
|--------------------------------|---------------|-------------------------|--------------------|
|                                |               | <i>Humanlike</i>        | <i>Cartoonlike</i> |
|                                |               |                         |                    |
|                                | <i>Social</i> | Smiling (N= 35)         | Smiling (N= 36)    |
|                                |               | Neutral (N= 45)         | Neutral (N= 39)    |
|                                | <i>Task</i>   | Smiling (N= 38)         | Smiling (N= 33)    |
|                                |               | Neutral (N= 39)         | Neutral (N= 31)    |

Participants were students enrolled from undergraduate courses from a business administration program (see Table 2). In total 296 successfully participated in the experiment. Students received partial class credit for their participation. Additional incentive to participate was provided through the opportunity to win one of the five 25 euro gift vouchers that were raffled amongst the participants. Participants were randomly assigned to the treatments. To control for gender effects (Byrne et al. 1992; Qiu et al. 2009) congruent agents were assigned, so a male participant was assigned to a male avatar, whereas a female avatar was assigned to a female participant, as previous research has pointed out that gender effects occurred when non-congruent agents were used.

**Table 2: Participant Characteristics & Descriptive Measures (N = 296)**

| <i>Participant Characteristics</i>     | <b>Mean</b>  | <b>Standard Deviation</b>  |
|--|--|--|
| Age                                    | 20.6 years   | 1.9 years  |
| Expertise mobile phone plans *         | 4.8  | 1.3  |
| Involvement with mobile phone plans ** | 5.19   | 0.9  |
| Used RA?                               | Yes<br>No  | 105 (35.5%)<br>191 (64.5%)   |
| If used, how many times? ***           | 3.9  | 4.1  |
| Price own phone plan                   | €1 – 20<br>€20 - 40<br>€40 - 60<br>€60 - 80<br>€80 - 100<br>> €100 | 47 (15.9%)<br>127 (42.9%)<br>71 (24%)<br>27 (9.1%)<br>12 (4.1%)<br>12 (4.1%) |
| Hours spent daily on internet          | < 1 hour<br>1 to 3 hours<br>3 to 5 hours<br>> 5 hours              | 24 (8.1%)<br>186 (62.8%)<br>74 (25%)<br>12 (4.1%)                            |
| Products bought online last year       | < 1<br>1 to 3<br>3 to 5<br>> 5<br>None                             | 14 (4.7%)<br>74 (25%)<br>63 (21.3%)<br>143 (48.4%)<br>2 (0.7%)               |

\* Measured on a single-item scale from 1 (very little expertise) to 7 (very much expertise)

\*\* Measured with Holzwarth et al.'s (2006) four-item scale from 1 (strongly disagree) to 7 (strongly agree)

\*\*\* N = 105

#### **4.1 Experimental Task**

Participants were supposed to imagine oneself to be customers of a fictional mobile phone service operator called 'Telco'. The objective of the experimental task was to interact with a VCSA in order to find out whether it was possible to save money through switching to another mobile cellular subscription. Participants were confronted with the fact that their actual call and text message behavior exceeded the limits of their current phone plan and that switching to another plan could save money. To enhance authenticity, a fictive copy of last

month's invoice was included in the task instructions. This invoice presented the participant's current monthly subscription ('Calling 200') and listed how many minutes and text messages were used. Important reasons to choose for this task are: 1) its customer service focus, 2) it represents a relevant situation for mobile phone users, 3) a large proportion of the participant population is familiar with selecting mobile phone subscriptions, and finally 4) participants do not need specialized knowledge to execute the task.

## **4.2 Experimental procedures**

A dedicated workflow application guided participants through all the steps of the experiment. Participants contacted the VCSA by activating a link included in the digital instructions. Interaction with the VCSA was structured through a predesigned script. The agents used were created by a firm specialized in VCSA technology and intelligent customer service applications. The VCSA was fully controlled by software that determined how to respond to the input provided by the participants. Important element of the VCSA system was the so called knowledge database. Configuration of this knowledge application was driven by the interaction script as well as the experience of the company that developed the agents. Although the interaction took place according to the rules of the script, the knowledge database made the application more realistic because, within clearly defined limits, it allowed the virtual agent to adapt its response to the input provided. The agent was presented in a dedicated pop-up screen (see Figure 3 for an agent example) to allow participants to simultaneously view their invoice and interact with the agent.

The interaction was started by the agent asking what service could be provided. Participants responded by typing their answer in a dedicated chat box positioned next to the agent. The

VSCA subsequently asked several questions about the participant's call and text message behavior (e.g., "How many minutes did you call", "How many text messages did you sent?") until the final, optimal advice (switch to another phone plan, namely 'Calling 300') was given to the participant.

**Figure 3: Example of Agent Interaction**



All interactions were logged. In order to prevent participants to get distracted from their primary task they were explicitly instructed to focus on task completion only. After the conversation with the VCSA ended the workflow automatically opened an online questionnaire including the post-experiment questions. The whole experiment was supervised by two instructors, who directed the experiment and provided general instructions. The experimental task took about fifteen minutes to execute.

### 4.3 Experiment Design

To induce perceptions of friendliness and expertise the virtual agent was programmed to communicate using natural sentences, act humanlike, and be able to answer all relevant questions. Smiling was manipulated by presenting a *neutral* versus *smiling* version of the agent. Based on Ekman's (1994) suggestions, attention was paid to incorporate a genuine smile (e.g. the 'Duchene' smile) as authentic smiles are argued to evoke more positive emotional reactions than non-sincere smiles (Ekman et al. 1982).

Anthropomorphism was manipulated using either a human or a cartoonlike image of the VCSA. For the humanlike treatment photos were selected from an online photo database. To select equally attractive photos for the male and female service agent the search criteria applied mainly focused on identical body attributes, such as eye-color, tone of skin, body position, and hair-color across the male and female, and smiling versus non-smiling agent. The search for photos was also limited to people of which both a neutral and a smiling photo was included in the database. After selection, the photos were sent to a professional cartoonist who transformed them into their cartoonlike equivalents. To avoid confound effects due to appearance, the cartoon-like images resembled the photos. Figure 4 shows four of the eight images used. Noting that Benbasat and Zmud (1999) argued that IS research gains relevance by providing applicability for IS practitioners, human-resembling cartoons were used based on their widespread employment in practice.

**Figure 4: Human-Neutral (m), Cartoon-Neutral (f), Cartoon-Smiling (m), Human-Smiling (f)**



Communication style was manipulated by either using a *socially-oriented* or *task-oriented* communication protocol. Development of this manipulation was based on the original categorization by Williams & Spiro (1985) and operationalised by Van Dolen et al. (2007). Socially-oriented agents aimed to be personal and supportive, rewarding participants verbally and showing empathy and understanding. On the other hand, the task-oriented style focused on attaining goals, talking purposeful and structuring the conversation. During the conversation the socially-oriented agent focused on solving a problem together with the customer, while referring to previous answers and using emoticons to relax the situation. The task-oriented agent used concise statements and clearly stuck to the task to be fulfilled.

#### **4.4. Conceptual test of manipulations and Pre-testing**

The treatments were developed in a series of steps. Initial versions of the treatments were pre-tested in dedicated sessions. The two different levels of the smiling (neutral versus smiling) and anthropomorphism (cartoon like versus human like) manipulations appeared to be strong enough from the beginning. However, the initial differences used in both communication styles (socially- versus task-oriented) were not strong enough to contrast both



levels of this manipulation. The initial pre-test revealed that this treatment was not strong enough to make sure that the socially-oriented agent was perceived to be more social than task-oriented, and the task-oriented agent was perceived to be more task than socially-oriented. According to the guidelines provided by Van Dolen et al. (2007) more cues of social- and task-oriented communication were added to the interaction protocol. For example, more emoticons and emphasis on the personal relationship were added to the script (e.g., “Of course I always listen to what you say!”). Both interaction scripts are presented in Appendix A. Finally, to make certain that all treatments were adequate a conceptual test of the manipulations resulting from the initial pre-tests was executed (cf. Langer 1975). A survey including questions about the manipulations was filled in by a sample of students following an undergraduate course e-business (n=88). Using semantic differential scales the respondents were asked to compare and judge both levels within each treatment. For example, concerning the manipulation anthropomorphism a question was included presenting both levels of this treatment (image of cartoon like agent and picture of human like agent) asking: “to what extent do you perceive picture A to be more cartoon like or human like?”. The results of this conceptual test revealed that the different treatment levels were adequate. The final setup and experimental procedures were pre-tested in a pilot session. This pilot session revealed that the workflow application and the agents worked properly, only the wording of some of the general instructions had to be slightly modified.

#### **4.5 Measures**

All items in the post-experiment questionnaire were measured on a seven-point Likert-scale and selected from established instruments that have been proven in prior research. The items were adopted to fit the context of our research. Table 3 shows the instruments used and Table 4 presents their average scores among the treatments.

**Table 3: Convergent validity and reliability statistics (N = 296)**

| Construct   | Items  | $\alpha$ | Composite Reliability | AVE  |
|---|--|----------|-----------------------|------|
| Friendliness<br>(Jayawardhena et al. 2007; Van Dolen et al. 2007) | FRI-1: Familiar with my situation<br>FRI-2: Building a friendly relationship with me<br>FRI-3: Cooperative and friendly  | 0.71     | 0.84                  | 0.63 |
| Expertise<br>(Holzwarth et al. 2006)                              | EXP-1: Trained<br>EXP-2: Experienced<br>EXP-3: Knowledgeable   | 0.86     | 0.92                  | 0.78 |
| Social Presence<br>(Yoo et al. 2001)                              | SP-1: I felt a sense of human contact with the virtual agent<br>SP-2: I felt a sense of personalness with the virtual agent<br>SP-3: I felt a sense of sociability with the virtual agent<br>SP-4: I felt a sense of human warmth with the virtual agent<br>SP-5: I felt a sense of human sensitivity with the virtual agent | 0.94     | 0.95                  | 0.80 |
| Personalization<br>(Komiak et al. 2006)                           | PER-1: The virtual agent understood my needs<br>PER-2: The virtual agent knew what I want<br>PER-3: The virtual agent took my needs as its own preferences   | 0.87     | 0.92                  | 0.80 |
| Service Encounter Satisfaction<br>(Barger et al. 2006)            | How satisfied are you with:<br><br>SAT-1: The virtual agent's advice?<br>SAT-2: The way the virtual agent treated you?<br>SAT-3: The overall interaction with the virtual agent?   | 0.83     | 0.90                  | 0.75 |

Note: Smiling, Communication Style, & Anthropomorphism were included as dummy variables. All variables were measured on 1-7 Likert-scales.

**Table 4: Descriptives**

|                                | Total<br>(N = 296) | Anthropomorphism     |                    | Communication Style |                     |
|--------------------------------|--------------------|----------------------|--------------------|---------------------|---------------------|
|                                |                    | Cartoon<br>(N = 139) | Human<br>(N = 157) | Task<br>(N = 141)   | Social<br>(N = 155) |
| Friendliness                   | 4.85 (1.12)        | 4.89 (1.17)          | 4.81 (1.07)        | 4.52 (1.05)         | 5.14 (1.09)         |
| Expertise                      | 5.17 (1.21)        | 5.27 (1.18)          | 5.07 (1.24)        | 5.12 (1.28)         | 5.20 (1.15)         |
| Social Presence                | 3.22 (1.48)        | 3.28 (1.46)          | 3.18 (1.51)        | 2.86 (1.30)         | 3.55 (1.57)         |
| Personalization                | 5.18 (1.18)        | 5.23 (1.18)          | 5.14 (1.17)        | 5.24 (1.49)         | 5.12 (1.20)         |
| Service Encounter Satisfaction | 5.20 (1.11)        | 5.27 (1.16)          | 5.14 (1.07)        | 5.30 (1.01)         | 5.12 (1.19)         |

Note: Standard deviations are shown in parentheses.

## **5. DATA ANALYSIS AND RESULTS**

Partial least squares (PLS) modeling was chosen for analysis. PLS was chosen for its ability to cope with small sample sizes. This allowed us to test the moderating effects. Moreover, as PLS is open to explore research models not widely tested before, we argued it would best fit the new conceptualization of online service encounters. Last, one of the advantages of PLS is that it allows for simultaneous examination of the measurement component (verifying reliability and validity of the constructs) and structural component (investigating the proposed relationships) in one model. Both are presented next.

### **5.1 Measurement Model**

Assessing construct reliability, Table 3 shows that composite reliability (ranging from 0.84 to 0.95) and Cronbach's alpha (ranging from 0.71 to 0.94) were above the cut-off values of 0.70 suggested minimum criteria suggested (Fornell et al. 1981). Convergent validity was investigated by the average variance extracted (AVE) and confirmatory factor analysis. AVE's should be greater than 50% and factor loadings should exceed 0.5 to become practically significant (Hair et al. 2006). Both criteria were met: AVE's ranged from 0.63 to 0.80 (see Table 5) and the minimum factor loading was 0.75. Thus, convergent validity was assured. Discriminant validity was investigated through factor- and cross-loadings (Chin 1998) and a comparison of the squared correlations among constructs with the AVE's (Ping Jr. 2004). All items loaded highly on their own latent variables (minimum loading is 0.72), but not very high on other constructs (Table 5), indicating discriminant validity. Moreover, none of the items loaded higher on other constructs than on its assigned latent variable. Further proof of discriminant validity is shown in Table 6, where none of the squared correlations exceed the construct's AVE.

**Table 5: Convergent validity: Confirmatory Factor Analysis (PLS)**

|       | <b>FRI</b>  | <b>EXP</b>  | <b>PER</b>  | <b>SP</b>   | <b>SAT</b>  |
|-------|-------------|-------------|-------------|-------------|-------------|
| FRI-1 | <b>0.75</b> | 0.46        | 0.44        | 0.47        | 0.52        |
| FRI-2 | <b>0.79</b> | 0.43        | 0.54        | 0.37        | 0.49        |
| FRI-3 | <b>0.85</b> | 0.38        | 0.41        | 0.63        | 0.39        |
| EXP-1 | 0.40        | <b>0.90</b> | 0.42        | 0.37        | 0.43        |
| EXP-2 | 0.49        | <b>0.91</b> | 0.49        | 0.41        | 0.49        |
| EXP-3 | 0.51        | <b>0.84</b> | 0.46        | 0.31        | 0.47        |
| PER-1 | 0.54        | 0.49        | <b>0.90</b> | 0.41        | 0.60        |
| PER-2 | 0.53        | 0.44        | <b>0.90</b> | 0.39        | 0.58        |
| PER-3 | 0.48        | 0.45        | <b>0.88</b> | 0.39        | 0.63        |
| SP-1  | 0.56        | 0.43        | 0.46        | <b>0.88</b> | 0.48        |
| SP-2  | 0.56        | 0.42        | 0.45        | <b>0.89</b> | 0.46        |
| SP-3  | 0.52        | 0.30        | 0.33        | <b>0.91</b> | 0.38        |
| SP-4  | 0.56        | 0.35        | 0.36        | <b>0.90</b> | 0.40        |
| SP-5  | 0.56        | 0.35        | 0.37        | <b>0.90</b> | 0.43        |
| SAT-1 | 0.37        | 0.42        | 0.65        | 0.27        | <b>0.81</b> |
| SAT-2 | 0.55        | 0.44        | 0.50        | 0.46        | <b>0.86</b> |
| SAT-3 | 0.59        | 0.50        | 0.58        | 0.53        | <b>0.92</b> |

**Table 6: Discriminant validity: AVE's versus cross-construct squared****correlations**

|     | <b>FRI</b>  | <b>EXP</b>  | <b>SMI</b>  | <b>PER</b>  | <b>SP</b>   | <b>SAT</b>  | <b>COM</b>  | <b>ANT</b>  |
|-----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| FRI | <b>0.63</b> |             |             |             |             |             |             |             |
| EXP | 0.27        | <b>0.78</b> |             |             |             |             |             |             |
| SMI | 0.00        | 0.00        | <b>1.00</b> |             |             |             |             |             |
| PER | 0.33        | 0.27        | 0.00        | <b>0.80</b> |             |             |             |             |
| SP  | 0.38        | 0.17        | 0.00        | 0.20        | <b>0.80</b> |             |             |             |
| SAT | 0.33        | 0.27        | 0.00        | 0.46        | 0.23        | <b>0.75</b> |             |             |
| COM | 0.08        | 0.00        | 0.00        | 0.00        | 0.06        | 0.01        | <b>1.00</b> |             |
| ANT | 0.00        | 0.01        | 0.00        | 0.00        | 0.00        | 0.00        | 0.00        | <b>1.00</b> |

Note: Bold scores are the AVE's of the individual constructs; diagonal are the squared correlations between the constructs.

**5.2 Structural Model**

To test the main effects of virtual agent characteristics on personalization and social presence and its corresponding influence on service encounter satisfaction, we analyzed the total dataset. Bootstrapping, with 500 subsamples as suggested by Chin (1998), was applied to

estimate the statistical significance of each path coefficient and  $R^2$  value. Table 7 shows that the agent characteristics explained 40% of the social presence and 40% of the personalization variance<sup>1</sup>. Together, social presence and personalization explained 50% of the variance in service encounter satisfaction.

**Table 7: Results of PLS Analysis for all different subsets (N = 296)**

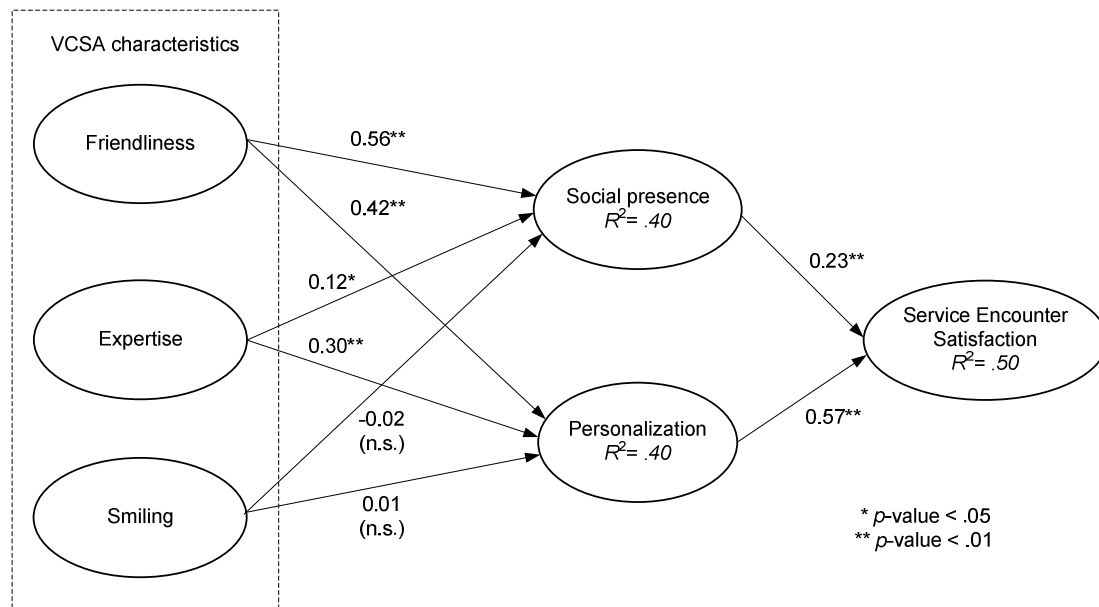
|                                       | Anthropomorphism   |                      |                    | Communication Style |                     |
|---------------------------------------|--------------------|----------------------|--------------------|---------------------|---------------------|
|                                       | Total<br>(N = 296) | Cartoon<br>(N = 139) | Human<br>(N = 157) | Task<br>(N = 141)   | Social<br>(N = 155) |
| <i>Personalization</i>                |                    |                      |                    |                     |                     |
| Friendliness                          | .42** (.06)        | .39** (.08)          | .45** (.09)        | .35** (.08)         | .58** (.08)         |
| Expertise                             | .30** (.06)        | .30** (.08)          | .30** (.09)        | .33** (.09)         | .21** (.08)         |
| Smiling                               | .01 (.05)          | .06 (.07)            | -.04 (.06)         | -.02 (.07)          | .01 (.05)           |
| $R^2$                                 | .40                | .37                  | .44                | .34                 | .53                 |
| <i>Social Presence</i>                |                    |                      |                    |                     |                     |
| Friendliness                          | .56** (.05)        | .61** (.07)          | .51** (.06)        | .54** (.07)         | .50** (.07)         |
| Expertise                             | .12* (.05)         | .08 (.07)            | .16 (.08)          | .04 (.08)           | .23** (.08)         |
| Smiling                               | -.02 (.05)         | -.02 (.06)           | -.02 (.06)         | .01 (.07)           | -.04 (.06)          |
| $R^2$                                 | .40                | .43                  | .37                | .31                 | .44                 |
| <i>Service Encounter Satisfaction</i> |                    |                      |                    |                     |                     |
| Personalization                       | .57** (.04)        | .61** (.05)          | .52** (.06)        | .52** (.06)         | .58** (.06)         |
| Social Presence                       | .23** (.04)        | .21** (.07)          | .27** (.07)        | .21** (.07)         | .27** (.07)         |
| $R^2$                                 | .50                | .51                  | .50                | .40                 | .59                 |

Note: Dependent variables are in *italic*. \*  $p$ -value < .05, \*\*  $p$ -value < .01

<sup>1</sup> Multiple regression analyses were also run to test for multicollinearity. As all VIF scores were below the recommended cutoff value of 10, multicollinearity was unlikely to be an issue.

Agent's friendliness had a very strong impact on personalization ( $\beta = .42, p < .01$ ) and social presence ( $\beta = .56, p < .01$ ), accepting hypothesis 1a and 1b. Expertise shown by the agent had a rather strong effect on personalization ( $\beta = .30, p < .01$ ) and a moderate effect on social presence ( $\beta = .12, p < .05$ ), thus accepting hypothesis 2a and 2b. Smiling did neither contribute to personalization nor to social presence, rejecting hypothesis 3a and 3b. Finally, personalization ( $\beta = .57, p < .01$ ) and social presence ( $\beta = .23, p < .01$ ) were strong predictors of service encounter satisfaction, accepting hypotheses 6 and 7. Figure 5 graphically displays our main findings.

**Figure 5: PLS main structural model (N = 296)**



To assess the moderating effects of anthropomorphism and communication style the conceptual model was estimated four times using split-samples of the dataset (cartoon  $N=139$ ; human  $N=157$ ; task  $N=141$ ; social  $N=155$ ). The results (see Table 7) indicated that the effect of friendliness on personalization was marginally stronger for human than for cartoonlike agents ( $\beta_{\text{human}} = .45, p < .01$  vs.  $\beta_{\text{cartoon}} = .39, p < .01$ ), while the effect of friendliness on social presence was stronger for cartoonlike than for human agents ( $\beta_{\text{cartoon}} = .61, p < .01$  vs.  $\beta_{\text{human}} = .51, p < .01$ ). Regarding communication style, the effect of friendliness on personalization was stronger for socially-oriented than for task-oriented agents ( $\beta_{\text{social}} = .58, p < .01$  vs.  $\beta_{\text{task}} = .35, p < .01$ ), while the effect of expertise on personalization was stronger for task-oriented than socially-oriented agents ( $\beta_{\text{task}} = .33, p < .01$  vs.  $\beta_{\text{social}} = .21, p < .01$ ). We also found the effect of expertise on social presence to be moderately strong and significant for socially-oriented agents ( $\beta_{\text{social}} = .23, p < .01$ ), while the effect was not significant for task-oriented agents.

To statistically test the differences between treatments additional tests were employed using the full dataset. Interaction effects between the agent characteristics and the moderating variables were created and added as independent variable. In order to assess the effects of the interaction terms, we ran interaction models for each of the separate relationships (Baron et al. 1986). The results confirmed that communication style moderates the effect of friendliness on personalization ( $\beta = .11, p < .05$ ) and the effect of expertise on social presence ( $\beta = .17, p < .01$ ). The moderating effect of communication style on the relationship between expertise and personalization was not found. This implies that hypothesis 4 is only partially supported. Moreover, none of the interaction effects between anthropomorphism and the agent characteristics were significant, rejecting hypothesis 5.

## 6. DISCUSSION

This study shows that VCSAs are able to provide online service encounters with both social and personal support. As expected, evaluation of an agent's friendliness and expertise elicits social presence and personalization and in turn, social presence and personalization have a strong effect on service encounter satisfaction. Moreover, we found evidence that the effect of friendliness on personalization, and expertise on social presence is stronger for VCSAs with a socially-oriented (vs. task-oriented) communication style.

Contrary to our expectations, smiling did not increase senses of social presence and personalization. An explanation for this result may lie in the fact that the agent smiled without applying stimulus-response mechanisms (Leventhal 1984). That behavior is not likely to induce emotional contagion, i.e., it is imperative that the agent's smile is evoked by the customers input. Further support for this proposition is provided by Ekman (1994), who argues that in order to convey emotional displays during interactions, consumers should experience smiles as authentic. An agent's smile should be result of the interaction between the agent and the customer in order to gain authenticity. Possibly, the agent's emotional reactions were not aligned with the customer, prohibiting the proposed effect of emotional contagion.

Interestingly, we found a non-significant moderating effect of anthropomorphism on the influence of agent characteristics on personalization and social presence. An explanation could be that a change in physical appearance does not elicit more social responses. Indeed, Lee (2010) suggests that the increase in anthropomorphism from cartoonlike to human agents might be too small to find variance in perceptions of social presence. Adding more fundamental human characteristics to the human-computer interaction, like use of language, interactivity, and conversing using social roles, were shown to evoke more social responses (Nass et al. 2000). While the VCSAs in the humanlike manipulation of the current study were

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confirmed to be perceived more humanlike than the cartoonlike agents, it could be that both types of agents were perceived to resemble humans anyway, and as such evoked social responses, thus only leading to a marginal increase in the socialness perception of the interaction.

### **6.1 Contributions to Research**

Our study contributes to ongoing research in four ways. First and foremost, our results provide support for the conceptualization of VCSAs as providers of ‘social online service encounters’. By infusing current technology-rich, web-based online service encounters with an element of human touch, VCSAs enrich online service encounters with elements considered critical to service delivery in traditional literature (Bitner 1990; Bitner et al. 2000). We also found strong effects of social presence and personalization on service encounter satisfaction. This result lends support to the view that social and personal support, elements argued to be key in offline service encounters, are vital to the evaluation of online service encounters as well (Bitner et al. 1990; Suprenant et al. 1987). Second, further proof of the applicability of Bitner’s (1990) service conceptualization is put forward by our finding that the agent’s perceived friendliness and expertise are fundamental to form social and personal online service encounters. In this way, more evidence is provided that friendliness and expertise are indeed paramount properties of service delivery, also in the online era. Third, this study is, to the best of our knowledge, the first to incorporate social presence as a determinant of service encounter satisfaction. While social presence has been found to be influential on outcome measures such as trust (Cyr et al. 2007) and enjoyment (Qiu et al. 2009), this study shows the applicability of social presence as determinant of customers’ satisfaction, increasing understanding and complementing the number of determinants of service encounter satisfaction (Rowley 2006).

Finally, IS researchers have increasingly embodied social presence theory (Short et al. 1976) in their studies as more attention is paid to the notion that affective processing is as important as cognitive processing for the adoption and usage of IT artifacts (e.g. Johnson, R. D. et al. 2006). This research aligns with this view and reconfirms Al-Natour and Benbasat's (2009) premise that IT artifacts are to be perceived as social actors and places social presence theory at heart of this conceptualization. In this way, both the literature on interactive user-artifacts relationships and social presence theory are developed.

## **6.2 Contributions to Practice**

From a practical point of view, this study has three implications. First, we make a strong case for the adoption of VCSAs to provide customer service. Having the ability to represent the previously unfeasible elements of social and personal contact, providers of both web-based service encounters and labor-intensive service encounters can improve their online service provision by employing a VCSA. Second, in order to gain the social benefits associated with virtual agent adoption, it is vital that customers perceive the agent as friendly and knowledgeable. Comparable to using training to educate human representatives, extensive thought and resources should thus be allocated to designing how the agent should look like and with what style it should communicate. Third, in the design of the VCSA's communication style, this research provides evidence that developers should focus on building a VCSA that communicates socially instead of task-oriented. While theoretical support for building personal relationships in order to improve service delivery is vast (e.g. Dabholkar et al. 2009; Van Dolen et al. 2007), service providers have been struggling with the financial implications associated with embracing personal and socially-oriented communication. That is, serving customers affectively with human personnel implies that more time, care, and attention should be allocated to service encounters, and that in turn,

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service representatives are able to serve fewer customers than when a to-the-point, task-oriented approach would have been used. Overall, VCSAs prove to be a solution to incorporate the social orientation into (online) service encounters. More importantly, service providers also have the opportunity to control how and with what tone of voice the virtual agent delivers the message. A VCSA can thus be programmed to communicate social-emotionally, aiming to satisfy customer's emotional needs and establishing an interpersonal relationship.

### **6.3 Limitations and Future Research**

Our research is subject to a number of limitations. First, the laboratory environment in which the research was conducted assures internal validity, but also affects the generalizability of the study as the VCSA was presented in an artificial environment, whether in practice they are embedded with the service provider's website. Second, while the VCSA allowed for marginally flexible deviations from the script, it could not cope with non-related, off topic questions. Examination of the experiment's log files indicated that most participants started interacting using elaborate, socially-enacted sentences as if they talked to a human representative (e.g., "Hello, my name is Ersan", "Thanks for helping me!"), providing support for social response theory (Reeves et al. 1996), but gradually turned to more staccato answers (e.g., "33 minutes", "Yes"). The limited knowledge database behind the experiment's virtual agent thus limited the lifelikeness of the conversation. Third, our smiling agent was a static picture who did not allow for stimulus-response mechanisms. As a consequence, the motionless smile did not attract much attention (Kuisma et al. 2010) and could be experienced as inauthentic (Ekman 1994), because it did not interactively respond to emotional reactions by the participant. Fourth, participants' interacted with the VCSAs for the first time and had no prior experience with the agents used in this study. Previous studies,

however, have indicated that perceptions of the agent's socialness may change as consumers become more acquainted with an agent (Biocca et al. 2003). Though we controlled for the participant's experience with the VCSA and found no effect on our dependent variables, recurrent use of the same VSCA might lead to different results. Fifth, mobile phone plans are a relatively low-risk product category. Future research should investigate whether VCSAs can fulfill the role of customer service agent in case of more risky products, such as mortgages or insurances. Last, the student sample threatens the external validity of the study. Future research is warranted to incorporate more heterogeneous samples to provide generalizability of this study's findings.

Future research on VCSAs may advance in numerous ways. First, to provide theoretical foundations for the employment of VCSAs, we encourage researchers to experiment with more technically-advanced agents, adding and combining elements such as motion, natural speech, lip synchronization, and 3D representation to virtual agent design in online service settings. Second, more research is recommended on the role of anthropomorphism. Our study did not find a moderating effect of anthropomorphism, while other studies (e.g. Louwerse et al. 2005; Luo et al. 2006) did find differences in outcome variables between human versus cartoonlike agents. To determine the nature of anthropomorphism, researchers should embrace a holistic view and incorporate multiple anthropomorphic cues in their investigation. Third, more in-depth research on specific anthropomorphic characteristics is encouraged. For example, it would be interesting to examine whether different input modalities on the customer's side, such as the recognition of natural language through speech recognition, would influence the socialness perception of the agent.

As self-service technology continues to advance, so will the capabilities of VCSAs. Having shown that current VCSAs are able to fulfill roles usually performed by human

service representatives, VCSAs are bound to play a key role in the service delivery of online service providers. This study has emphasized that VCSAs prove an exemplary tool to provide online service encounters, representing elements at heart of service conception and overcoming the lack of interpersonal interaction found in online service settings.

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# Appendix A

## *Socially- vs. Task-oriented Communication Style*

|                 | <b>SOCIAL</b>  | <b>TASK</b>   |
|-----------------|--|---|
| <b>1.</b>       |  |   |
| <b>VCSA</b>     | Hello, I'm Telco's virtual assistant. Together we can solve all your problems. How can I be of service?  | Hello, I'm Telco's virtual assistant. I can solve your problems. How can I help you?  |
| <b>Customer</b> | My phone expenses are exceeding my current monthly plan and I'd like to pay less.  | My phone expenses are exceeding my current monthly plan and I'd like to pay less.   |
| <b>2.</b>       |  |   |
| <b>VCSA</b>     | Yes, I understand you favor the most lucrative plan. Don't worry, I have a long history in helping our customers and I'm confident that together we can find a solution for you as well.<br><br>So let's see what we can do for you. We will use some of the data in your most recent invoice.<br><br>Do you have the invoice at hand? | Okay. Based on your most recent invoice, let's see how we can figure this out.<br><br>Do you have the invoice at hand?  |
| <b>Customer</b> | Yes<br>Yes, I have it<br>Sure  | Yes<br>Yes, I have it<br>Sure   |
| <b>3.</b>       |  |   |
| <b>VCSA</b>     | Great. It is my pleasure to be of service to you. We now need some of your invoice details.<br><br>First of all, we need the name of your current plan. Which mobile phone plan are you currently enrolled to? You can find this under 'Subscription' on your invoice.   | Fine. We need the number of minutes you have called and the number of SMS text messages you have send exceeding your plan, plus the minutes called to service numbers as these exceed your current plan as well.<br><br>First, I'd like to know the name of your current plan. Which mobile phone plan are you currently enrolled to? You can find this under 'Subscription' on your invoice. |
| <b>Customer</b> | Calling 200<br>I have a Calling 200 plan   | Calling 200<br>I have a Calling 200 plan  |
| <b>4.</b>       |  |   |
| <b>VCSA</b>     | Thanks!<br><br>Earlier you mentioned that you've used more minutes than the Calling 200 plan   | Second, I need the number of minutes you have called exceeding your plan.<br><br>How many minutes of phone calls within   |



|                 |   |   |
|-----------------|---|---|
|                 | <p>allows for. We call this 'additional costs exceeding your plan', which can be found on your invoice.</p> <p>How many minutes of phone calls within the Netherlands did you make exceeding your plan?</p>   | the Netherlands did you make exceeding your plan?   |
| <b>Customer</b> | <p>73 minutes</p> <p>73</p> <p>1 hour and 13 minutes</p>  | <p>73 minutes</p> <p>73</p> <p>1 hour and 13 minutes</p>  |
| <b>5.</b>       |   |   |
| <b>VCSA</b>     | <p>Al right, 73 minutes. We'll keep that in mind.</p> <p>As you have exceeded your monthly minutes, I guess you might also have exceeded your monthly SMS text messages.</p> <p>How many text messages did you send exceeding the number of text messages included in your plan?</p>  | <p>Next, I need the number of text messages.</p> <p>How many text messages did you send exceeding the number of text messages included in your plan?</p>  |
| <b>Customer</b> | <p>33</p> <p>33 text messages</p> <p>33 messages</p>  | <p>33</p> <p>33 text messages</p> <p>33 messages</p>  |
| <b>6.</b>       |   |   |
| <b>VCSA</b>     | <p>Wow, you really have sent a lot of text messages! ;)</p> <p>Finally we need the number of minutes you have called to service numbers, as these exceed your current plan as well.</p> <p>How many minutes did you call to service numbers?</p>  | <p>Finally I need the number of minutes you have called to service numbers.</p> <p>How many minutes did you call to service numbers?</p>  |
| <b>Customer</b> | <p>2 minutes</p> <p>2 min</p> <p>2</p>  | <p>2 minutes</p> <p>2 min</p> <p>2</p>  |
| <b>7.</b>       |   |   |
| <b>VCSA</b>     | <p>Okay, great! Thanks for all the information. Let's wrap it up; I think I know enough of you to draw the picture. You almost call as much as I do ;)</p> <p>In total you've exceeded the monthly limit of your plan with 73 minutes of calls within The Netherlands, 2 minutes of calls to service numbers, and 33 text messages.</p> | <p>Now that I have all the information, an overview of your extra costs can be provided.</p> <p>In total you've exceeded the monthly limit of your plan with 73 minutes of calls within The Netherlands, 2 minutes of calls to service numbers, and 33 text messages.</p> <p>Is this correct?</p> |

|                 |   |   |
|-----------------|---|---|
|                 | That's correct, isn't it?   |   |
| <b>Customer</b> | Yes   | Yes   |
| <b>8.</b>       |   |   |
| <b>VCSA</b>     | <p>Great to hear that, we're getting there! Now it's time to translate your calling behavior into a plan to reduce your costs.</p> <p>If I've got it right (I assume I do ☺), the total amount of extra costs on the invoice is €16,20.</p> <p>Is this amount also included in your invoice?</p>  | <p>I now have all the information and will figure things out so I can give you the best advice possible.</p> <p>The fee for calls made or text messages sent exceeding your plan limits is 15 cent per minute/message. In total you've used 108 minutes/messages. Together that leads to €16,20 of extra costs on your invoice.</p> <p>Is this amount also included in the invoice?</p> |
| <b>Customer</b> | <p>Yes</p> <p>Yes, it's there</p> <p>Correct</p>  | <p>Yes</p> <p>Yes, it's there</p> <p>Correct</p>  |
| <b>9.</b>       |   |   |
| <b>VCSA</b>     | <p>We can get rid of those extra costs, no problem!</p> <p>Now we've figured things out and got a good insight into your calling behavior, I can recommend you to change your phone plan.</p> <p>Our Calling 300 plan obviously fits you better. Instead of the €36,20 of your current invoice, your total monthly costs would only be €25,00. Calling 300 allows you to remain your calling and texting behavior, while reducing your monthly bill. Sounds good, right? ;)</p> <p>Would you like to switch your phone plan to Calling 300?</p> | <p>You can reduce costs by switching to another phone plan.</p> <p>Based on my analysis, our Calling 300 plan is the cheapest option for you. Instead of the current €36,20 your monthly costs would be reduced to €25,00.</p> <p>Would you like to switch your phone plan to Calling 300?</p>  |
| <b>Customer</b> | <p>Okay</p> <p>Sure</p> <p>Yes!</p>   | <p>Okay</p> <p>Sure</p> <p>Yes!</p>   |
| <b>10.</b>      |   |   |
| <b>VCSA</b>     | <p>Great, I am going to switch your phone plan. It was a pleasure helping you solve your problems. Hopefully you've enjoyed this conversation as much as I did!</p> <p>Thanks for your time; I hope to service you again in the future!</p>   | <p>I am going to switch your phone plan to Calling 300. Hopefully I have solved all your problems.</p> <p>Thanks for your time.</p>   |

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